NITREX

HOT ZONES: MAXIMIZING PERFORMANCE

USING STATE-OF-THE-ART TECHNOLOGY

HIGH-PERFORMING, LONGER LASTING

You've repaired, relined, and rebuilt your hot zone to stretch its lifespan and performance for as long as you can. When this is no longer a practical fix, call on the hot zone experts at Nitrex to build a replacement hot zone for your existing vacuum furnace that is engineered for state-of-the-art performance with a reduced cost of operation and maintenance.

Like our vacuum furnaces, Nitrex hot zones are the industry's workhorses, designed to outperform competitive offerings with a lower cost of ownership. We can deliver a more durable, cost-effective, and thermally efficient alternative even for the most difficult processing applications.

YOUR SOURCE FOR REPAIRS & REBUILDS

The Nitrex aftermarket team has the experience and capabilities to tackle both the repair and rebuild of hot zones of most vacuum furnace brands.

Contact us for your next upgrade project.

THE NITREX ADVANTAGE

- A one-piece heavy-duty, double-wall (single wall for other furnace manufacturers) plenum design provides a higher-efficiency with more uniform cooling gas flow.
- Heavy duty plenum built with 30% thicker metal plate to assure structural integrity and eliminate plenum distortion from heating and cooling cycles, while reducing element & insulation damage.
- Patented screw-in Venturi graphite and molybdenum nozzles surround the hot zone for higher gas velocity at the parts surface, improving cooling uniformity & rate.
- Two piece screw-in graphite nozzles with oversized washer that secures the insulation and protects the receiver from heat distortion.
- A patented "two-point" heating element support system allows the element to "float", reducing stress, potential grounding, and arcing caused by element warping, tilting, and hanger rotation.
- Insulation, graphite element supports, and nozzles can be easily replaced or repaired by hand without tools for easy maintenance and longer component life.
- Use of advanced materials and designs reduce the need for frequent maintenance.
- High-efficiency insulation and an all-metal shielding use channel separators to maintain air gap between shields, reducing heat loss and energy usage.
- 3D Scanning measurement technology quickly measures your existing hot zone with accuracy, for precise replication of your hot zone.
- CFC leading edge angle is standard and optional CFC hot face for erosion & mechanical damage protection.

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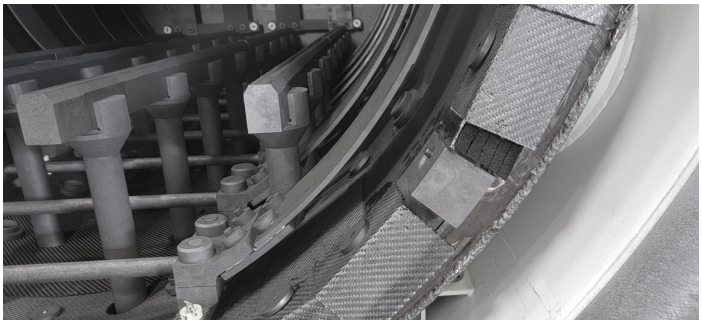
CHOOSING THE RIGHT HOT ZONE

Whether it's a standard or custom-engineered hot zone with a graphite or all-metal construction, Nitrex can build it better than the original. Our design experts thoroughly review your application and process requirements, as well as your maintenance history and challenges to help determine the best-performing hot zone for your process goals.

GRAPHITE DESIGN



A graphite hot zone is more energy-efficient than an all-metal design, costs considerably less to replace, easier to repair, with longer life.

- A solid floating element support system allows for independent movement of elements, minimizing stress and maximizing element life.
- A innovative radial heating element design and high-density materials maximize temperature uniformity.
- Extra-wide elements provide a larger radiating surface, which minimizes hot/cold areas and maintains exceptional part temperature uniformity.
- The Venturi graphite nozzle design accelerates gas velocity for faster quench, and with a larger number of nozzles, maximum part temperature uniformity is attained while quenching.

ALL-METAL HEAT-SHIELDING DESIGN

An all-metal hot zone has its place for high-purity process applications that must meet the most stringent demands for part purity, quality and metallurgical accuracy.

- A patented two-point standard element support system with ribbed ML molybdenum elements, for low thermal stress & long life.
- Standard ML Molybdnum hot face sheet is much stronger and resists breakage for longer life & less maintenance.
- Screw-in molybdenum nozzles are ideal for easy installation and minimal maintenance.
- Easy to install, low maintenance screw-in molybdenum nozzles creates a Venturi effect accelerating the cooling gas to the parts for faster quenching.
- Optional high purity ceramic insulation provides better heat retention with similar purity performance to an all metal hot zone.